

REMARKS

Reconsideration of the present application is respectfully requested. The Examiner has previously imposed numerous rejections of the claims based upon a number of prior art references. The rejections under 35 U.S.C. § 102 (b) are set forth below:

Claims 43-48, 51-53, 55-57, 59-61 are rejected under 35 U.S.C. §102(b) as being anticipated by Chen et al (U.S. patent 6,018,033), herein Chen.

Claims 43, 45, 49 and 52 are rejected under 35 U.S.C. §102(b) as being anticipated by Onwumere et al (U.S. patent 5,591,210), herein Onwumere.

Claims 43-44 are rejected under 35 U.S.C. §102(b) as being anticipated by Kobayashi et al (U.S. patent 6,207,762), herein Kobayashi.

Claims 43-45 are rejected under 35 U.S.C. §102(b) as being anticipated by Takao et al (JP publication 11-035675), herein Takao.

Claims 43-45 are rejected under 35 U.S.C. §102(b) as being anticipated by Chino et al (U.S. patent 6,746,562 and JP 2002-2060422), herein Chino.

The applicants have carefully studied the references and grounds of rejection and conclude that biodegradable moldable resins containing thermo-reversible cross-linked (TRSL) structures that have Diels-Alder type functional groups are not disclosed in the references. Accordingly, the claims are believed to be in condition of allowance.

Before turning to the discussion of the claim rejections, it should be noted that new dependent claims 131-137, indicating that the Diels-Alder type functional group is selected from cyclic dienes and cyclic dienophiles, finds support in the specification at page 15, lines 26 to page 16, line 9.

Claims 43-48, 51-53, 55-57, 59-61 are rejected under 35 U.S.C. §102(b) as being anticipated by Chen et al (U.S. patent 6,018,033), herein Chen. The applicants respectfully disagree with the examiner's conclusion that Chen discloses the present invention. Chen is directed to is directed to gels and hydrogels, which are not *moldable* biodegradable resins. This is in marked contrast to the present application, which is directed to moldable biodegradable resins.

Furthermore, the applicant contends that thermoreversability has a different meaning than what is meant by the term in the present application. Concerning Figure 12, the gels disclosed in Chen do not seem to disassociate as the temperature rises, and therefore are not thermoreversible as indicated by the present claims. Further, "thermoreversible", in the sense that Chen uses the term, is directed to swelling and shrinking of the gels. This is supported by the description of Figure 12 in column 5 where it is stated "the figure depicts the thermoreversible swelling and shrinking". In other words, "thermoreversability", as used by Chen, refers to a volume change, not to the cleaving or reformation of a covalent bond. Accordingly, for these reasons, it is submitted that the claims of the present application are allowable over Chen.

Claim 49 recites a thermoplastic resin in which the moldable biodegradable resin is a polylactic acid or modified body of polylactic acid ("PLA's"). Claim 50 recites a thermoplastic resin in which the moldable biodegradable resin is a polybutylene succinate or modified body of polybutylene succinate ("PBS's"). PLA's and PBS's are art regarded as biodegradable resins. These claims distinguish over Chen, which fails to disclose these particular biodegradable resins.

Claims 43, 45, 49 and 52 are rejected under 35 U.S.C. §102(b) as being anticipated by Onwumere et al (U.S. patent 5,591,210). Onwumere discloses reversibly aromatic urethane bonds. These bonds are not understood to be the product of a Diels Alder reaction that

takes place between a diene and a dienophile. For this reason, it is submitted that the presently claimed subject matter is patentable over Onwumere. Claim 49, now amended to recite PLA's as the moldable biodegradable resin, is believed to clearly distinguish over Onwumere.

Claims 43-44 are rejected under 35 U.S.C. §102(b) as being anticipated by Kobayashi et al (U.S. patent 6,207,762). Kobayashi purports to disclose a thermally reversible crosslinked matter in which the crosslinking is ionic. See col. 21 lines 32 – 37. In contrast, the subject matter of claims 43 –44 recites that the thermo-reversible cross-linked structure is covalently bonded. Accordingly, Kobayashi does not anticipate claim 43.

Claims 43-45 are rejected under 35 U.S.C. §102(b) as being anticipated by Takao et al (JP publication 11-035675), herein Takao. Reliance upon Takao is not understood, as the claims require Diels-Alder functionality as the thermoreversible mechanism. The examiner indicates that Takao discloses “alkenyl-carbonyl link”. The examiner is asked to explain where in the Takao disclosure it is indicated that Diels-Alder functionality is provided, or otherwise withdraw the rejection. The applicants are of the view that the Takao 102 (b) rejection should be withdrawn.

Claims 43-44 are rejected under 35 U.S.C. §102(b) as being anticipated by Chino et al (U.S. Patent no. 6,746,562 and JP 2002-2060422). Claim 44 recites a biodegradable moldable resin having a functional group forming a thermo-reversible cross-linked structure which is covalently bonded by cooling and cleaved by heating.... Clearly, Chino's disclosure is directed to something fundamentally different, as Chino discloses elastomeric resins to which thermoreversability is purportedly imparted. In contrast, the present claimed subject matter recites a biodegradable resin to which thermoreversability is imparted. This is evident from the

present application, where the moldable biodegradable component is exemplified by PLA's and PBS's. Thus, Chino fails to anticipate the presently claimed subject matter.

The rejection based on §103 are based upon combinations of references that derive from applications of the references as applied in the §102(b) rejections. Accordingly, these rejections are overcome for the reason stated above, with regard to the applicants' comments pertaining to Chen, Onwumere, Kobayashi, Takao, and Chino.

Wherefore, based upon the foregoing, it is respectfully submitted that the present application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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